CLASSIFICATION CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY

INFORMATION CONFIDENTIAL

FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

COUNTRY	USSR	DATE OF INFORMATION	
SUBJECT	Radio communications		
HOW PUBLISHED	Monthly periodical	DATE DIST.	7 Dec 1948
WHERE PUBLISHED	Moscow, USSR	NO. OF PAGES	4
DATE PUBLISHED	May 1948	SUPPLEMENT TO	
LANGUAGE	Russian		

THIS IS UNEVALUATED INFORMATION FOR THE RESEARCH USE OF TRAINED INTELLIGENCE ANALYSTS

SOURCE IDENTIFICATION Vestnik Svyazi -- Elektrosvyaz', No 5, 1948. (FDB Per Abs 65T105 -- Translation specifically requested.)

NEW TECHNIQUES IN USSR RADIO COMMUNICATIONS AND BROADCASTING

Engineers N. M. Strel'chenko and M. A. Shkud

In spite of extensive destruction of radio centers by the German occupation army, the general volume of radio communications and radio broadcasting not only did not decrease during World War II, but on the contrary increased with the installation of new plants.

Soviet radio designers did a great amount of work, showing that they are capable of solving important technical and organizational problems in the best and most profitable manner. Speed of construction work during the war surpassed all former norms for rapid construction. This experience and the initiative of the builders in solving complex problems have been of the greatest importance in working to fulfill the Five-Year Plan ahead of schedule.

Installation of radio plants of the postwar Five-Year Plan is carried out on the basis of the latest achievements in modern technique, which materially improve the quality and operation of radio stations. The solution of problems connected with the introduction of new techniques, especially taking into account the increase of power, demands considerable creative initiative on the part of builders and industrial workers.

Persistent attempts are being made to lower the cost of new radio plants. Much has been done in the construction of antenna towers. This is very important, as in the course of this year alone it is necessary to install a considerable number of iron masts and towers. New developments and innovations of our specialists make it possible to use only one third of the metal formerly used for certain types of construction. The construction of wooden masts has also been improved. Outstanding creative work in this field has been done by Comrade Savitskiy, Laureate of the Stalin Prize.

Through a rational distribution and optimum use of industrial resources, it has been possible, first of all, to reduce considerably the quantity of necessary equipment, and, secondly, to reduce the space required in the buildings in question. However, in this connection much remains to be done by radio manufacturers.

The increase of power in the entire radio spectrum from the very shortest waves to the very long ones and the demands of efficiency in the directivity and range of antennas have posed a number of complicated problems for radio manufacturers

CLASSIFICATION CONFIDENTIAL

STATE	X	NAVY	X	NSRB	DISTRIBUTION
ARMY	X	AIR	X		

CONFIDENTIAL

in connection with planning, constructing, and equipping new plants. Some other urgent problems of contemporary radio manufacturing are being solved by the manufacturers in cooperation with scientific research organizations and industrial workers, thus attaining considerable technical efficiency.

For successful fulfillment of the Five-Year Plan in radio construction, it is important to introduce advanced techniques in construction and installation work. In 1948, the introduction of mechanization in construction work will be increased threefold compared to 1947. For the mechanization of certain processes involving physical labor, such as cable laying, grounding, installation of masts, installation of copper conduit lines, etc., special devices are being used successfully. The manufacture of highly productive mechanisms is continuing.

Large-scale use of new techniques and rapid methods in the installation of equipment, mechanization of construction work, and unselfish creative efforts -- all have enabled many groups of manufacturers to attain outstanding results. The construction of a number of new powerful radio stations was begun in the Soviet Union in the past year. The best results were obtained by a group of constructors working under direction of Comrades Sevat'nev and Treyner. The plants, which they built in very short time, have been highly rated.

In the course of construction, experienced leaders and stakhanovite workers arose, who showed great enthusiasm for their work. Among them we may mention the foremen, Comrades Van'kevich, Kovshov, and Shlagman; assembly workers Dudkin, Golubtsov, Lebedev, Kopchenko, Varushkin, Barbatunov, Yurgens; and many others.

The development of radio economy in our country during the postwar Five-Year Plan is characterized not only by new construction work, but most of all, by reconstruction and technical re-equipment of existing radio communication and radio broadcasting centers.

The last few years have been especially remarkable for the introduction of new techniques and contemporary technical operational methods in all the USSR radio plants without exception. The plans of Soviet engineers have found wide application.

Mastering new techniques is a complicated process and is dependent upon overcoming considerable difficulties. It entails technical risks and demands persistent creative work not only on the part of the inventor but also on the part of a great number of engineers and technicians.

Engineers of the Central Scientific Research Institute of the Ministry of Communications, as well as those working in radio plants of the capital and its environs, have made many suggestions which have helped raise efficiency and improve radio communications and radio broadcasting facilities. In the course of the year, 47 important plans of designers and inventors have been put into practice.

The transition to frequency modulation in radio communications, utilization of highly efficient schemes of radio broadcasting stations, production of Soviet demountable tubes, and other developments -- all these outstanding results are due to the fruitful efforts of our progressive inventors, designers, and all of the radio enterprises.

The adoption of static-free systems as used in radio communications has proved its worth; however, major defects in this equipment have also been discovered. The experiences gained from the use of static-free systems were generalized and new, improved types of equipment were produced on that basis.

At present, a new oscillator developed by Engineer Magazanik is being put into production. [illegible] technical qualities.

Concomitant with construction of new exciters, attempts are being made to improve the FM receiving attachments. A group of radio workers and members of the Central Scientific Research Institute of the Ministry of Communications has created a model for a receiving attachment which has none of the construction errors contained in the first experimental device; the electrical and operational performance also has been improved. The new receiving attachments assure a higher degree of static elimination and stability of performance under frequency variations.

Research has been carried out to raise the efficiency of equipment in static-free systems. A group of radio workers under direction of Engineer Agapov applied the system of two-frequency-channel telegraphy on one of the main lines of radio communication. Such a system of channel compression is economically profitable and technically excellent.

In the field of radio communications, the past year has yielded good results in improvement of stability in the operation of radio trunk lines and the compression of radio channels. The well-organized radio-forecast service, the continuous study of the propagation of radio waves, the analysis and selection of more effective types of antennas for the main lines of radio communication, and other types of research by Soviet engineers -- all have been of great importance.

In our country, the development of intraregional radio communications is becoming more and more important. Here too the achievements of modern radio techniques are being generally utilized. Many of the intraregional lines of radio communications have already been equipped with printing devices of Soviet origin. The mass introduction of such instruments continues.

Engineer Shvarts, laureate of the Stalin Prize, has developed terminal equipment for duplex telephone communication on low-power radio stations. It is intended for intraregional telephone lines. This equipment is indispensable for the telephone systems of populated places in regions that are not easily accessible and where it is impossible to install wire lines. This equipment is very easy to operate as it affords the possibility of working with a duplex system on one wave and with one antenna without separate receiving and transmitting systems.

A new set of instruments developed by Engineers Simonov and Shteyn is being put into use, which guarantees static-free operation of intraregional radio communications.

Until recently, there has been no satisfactory radio wire change-over equipment. Engineer Podberezkiy developed a very handy radio-wire change-over unit which will help to equip the intraregional telephone communications with perfect switching devices.

New techniques continue to be introduced successfully at radio broadcasting stations.

The first models of demountable tubes, described in the periodical Vestnik Svyazi (No 5, 1947) served as a basis on which research work and experiments were carried out in production of improved types of powerful demountable tubes of domestic manufacture. The economic advantages of using demountable tubes at radio broadcasting stations have been demonstrated in practice. These tubes proved to be 10-16 times more economical than the regular unsoldered [sic] tubes. This factor opens up a whole new field for introduction of demountable tubes into radio broadcasting technology.

Another invention of a Soviet engineer, Comrade Kruglov, is widely applied by Soviet radio broadcasting stations. This is the system of self-plate modulation, which was described in Vestnik Svyazi (No 3 and 4, 1947). The Kruglov scheme has proved very valuable in practice and is superior to the classical systems of grid and plate modulation.

Radio broadcasting stations are continuing to introduce highly effecti[illegible] antennae with high and [illegible] which greatly improve the quality of broadcasting.

In connection with radio broadcasting in large cities, there are great possibilities for Soviet-designed transmitters built for high-frequency broadcasting. A transmitter of this type, built in one of the cities of the USSR has made it possible to listen to pure, undistorted broadcasts from theaters, concert halls, etc.

Caption under photograph (not reproduced, but available in CIA as Photo Accession No 8309): "Anatoliy Viktorovich Ivanov is one of the young radio specialists who have grown up during the years of Soviet power. Comrade Ivanov has lately been working as chief engineer of a large radio center, where he did extensive work in introducing powerful demountable tubes. Comrade Ivanov has repeatedly worked on reconstruction and modernization of peripheral [sic] radio stations. He is at present studying at the Moscow Institute of Communications Engineers and at the same time is in charge of the High-Frequency Laboratory of the Moscow Radio Broadcasting Administration. The photograph shows A. V. Ivanov in the technical control room of the Moscow Radio Broadcasting Administration, checking the work of Moscow broadcasting stations."

- E N D -